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Application Number 09/929,238

Filing Date August 13, 2001

First Named Inventor Stephen F. Gass

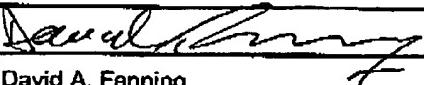
Art Unit 3724

Examiner Name Boyer D. Ashley

Attorney Docket Number SDT 315

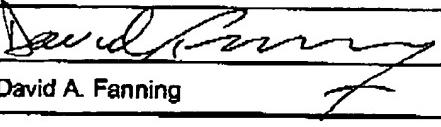
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	SD3, LLC		
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Printed name	David A. Fanning		
Date	February 17, 2006	Reg. No.	33,233

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Date: February 17, 2006

STEPHEN F. GASS

Serial No.: 09/929,238

Examiner Boyer D. Ashley

Filed: August 13, 2001

Group Art Unit 3724

For: MITER SAW WITH IMPROVED SAFETY SYSTEM

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPEAL BRIEF

1. Real party in Interest.

The real party in interest is SD3, LLC, the assignee of the above-identified application. SD3 is a privately owned Oregon limited liability company.

2. Related appeals and interferences.

All other known prior and pending appeals, interferences or judicial proceedings which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal are listed below. These appeals are listed because SD3, LLC is the real party in interest and the appeals relate to various aspects of safety systems for power equipment.

1. Appeal of application serial number 09/929,221 (appeal brief filed, awaiting examiner's answer).
2. Appeal of application serial number 09/929,227 (notice of appeal filed).
3. Appeal of application serial number 09/929,240 (notice of appeal filed).
4. Appeal of application serial number 09/929,242 (notice of appeal filed).

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5. Appeal of application serial number 09/929,425 (appeal brief filed, awaiting examiner's answer).
6. Appeal of application serial number 09/929,426 (examiner reopened prosecution after applicant filed an appeal brief).
7. Appeal of application serial number 10/053,390 (appeal brief filed, awaiting examiner's answer).
8. Appeal of application serial number 10/100,211 (appeal brief filed, awaiting examiner's answer).
9. Appeal of application serial number 10/189,027 (appeal brief filed, awaiting examiner's answer).
10. Appeal of application serial number 10/189,031 (appeal brief filed, awaiting examiner's answer).
11. Appeal of application serial number 10/243,042 (examiner reopened prosecution after applicant filed an appeal brief).

3. Status of claims.

The application was filed with claims 1-29 and claim 30 was added during prosecution. Claims 1-8 and 10-29 were cancelled without prejudice. Claims 9 and 30 are rejected. The appealed claims are claims 9 and 30.

4. Status of amendments.

All amendments have been entered.

5. Summary of claimed subject matter.

The claims in this appeal relate to miter saws equipped with new safety systems. Miter saws and other power tools such as table saws, chop saws, radial arm saws, circular saws, band saws, jointers, and planers have cutting tools or blades that present a danger to persons using the machines, and each year tens of thousands of people in the United States are severely injured on such machines.¹ New safety technology has been invented to address this problem. The technology detects when an unsafe condition arises between a person and the cutting tool and then performs some action to prevent or mitigate any injury. One embodiment of the technology is a table saw configured to detect contact between a person and the blade and to stop the blade from spinning upon detection of contact. Such table saws are now being sold under the name SawStop and those saws have already saved the hands or fingers of at least 27 different people who had accidents while using the saws.² Those people likely would have suffered life-changing lacerations or amputations if they had been working on non-SawStop saws. Instead, in each case the person walked away with no more than a scratch.

Another embodiment of the technology is a miter saw configured to detect contact between a person and the blade and to stop rotation of the blade upon detection

¹ The U.S. Consumer Product Safety Commission, National Electronic Injury Surveillance System, Directorate for Epidemiology, estimates 58,958 injuries involving various types of power saws and 20,899 injuries involving "saws, not specified" during 2004. (These statistics are publicly available at www.cpsc.gov. The relevant product codes for searching include codes 825, 832, 841, 842, 843, and 845.)

² SawStop saws are made and sold by SawStop, LLC, a wholly-owned subsidiary of applicant SD3, LLC. Pictures and videos of SawStop saws can be seen on the Internet at www.sawstop.com.

of contact. This application relates to that miter saw embodiment. Specifically, independent claim 9 describes a miter saw (such as miter saw 1510 in Figures 3-8) with a support structure having a cutting zone (such as base 1512 in Figures 3 and 5-8). A swing arm is pivotally attached to the support structure (such as swing arm 1514 in Figures 3, 5, 6 and 8, or swing arms 1550 and 1552 in Figure 7), and a rotatable blade (such as blade 40) is supported by the swing arm so that the blade may move into the cutting zone to cut a workpiece. A handle (such as handle 1518) is associated with the swing arm so that a user may pivot the swing arm and blade into the cutting zone (as described in paragraph 30 of the specification as published or page 13, lines 2-7 in the specification as submitted). A motor drives the blade (such as motor assembly 16). The miter saw includes a detection system adapted to detect contact between the blade and a person (such as detection subsystem 22 shown schematically in Figure 1). The saw also includes a brake mechanism adapted to stop rotation of the blade upon detection by the detection system of contact between the blade and the person (such as brake mechanism 28 shown schematically in Figure 1). The detection system and brake mechanism are discussed generally in paragraphs 19 and 21 in the published specification, which corresponds to the paragraphs beginning on page 5, line 4 and page 6, line 11 in the specification as submitted. Exemplary embodiments of detection systems and brake mechanisms are discussed in several places in the specification, including paragraphs 23 and 25 in the published specification, which corresponds to the paragraphs beginning on page 7, line 19 and page 9, line 13 in the specification as submitted.

Independent claim 30 is similar to claim 9, except that claim 30 replaces the brake mechanism limitation of claim 9 with the following means-plus-function limitation: "brake means for stopping rotation of the blade upon detection by the detection system of contact between the blade and the person." The structure, material or acts described in the specification as corresponding to the recited function are the various embodiments described in the specification. Those embodiments include one or more of reaction subsystem 24, brake mechanism 28, biasing mechanism 30, restraining mechanism 32, and release mechanism 34 (as discussed in paragraphs 20 and 21 of the published specification and at page 5, line 15 to page 6, line 21 in the specification as submitted). Some embodiments include one or more of pawl 60 (discussed in paragraphs 25-27 of the published specification and at page 9, line 13 to page 11, line 12 in the specification as submitted), fusible member 70 (discussed in paragraphs 26-27 of the published specification and at page 10, line 4 to page 11, line 12 in the specification as submitted), firing subsystem 76 (discussed in paragraph 27 of the published specification and at page 10, line 15 to page 11, line 12 in the specification as submitted), and cartridge 80 (discussed in paragraph 28 of the published specification and at page 11, line 13 to page 12, line 9 in the specification as submitted).

6. Grounds of rejection to be reviewed on appeal.

The sole ground of rejection presented for review is the rejection of claims 9 and 30 under 35 USC 103(a) as obvious in light of Brundage (US Patent 4,934,233) or Suzuki (US Patent 5,791,224) combined with Lokey (US Patent 3,785,230) and Yoneda (US Patent 4,117,752).

7. Argument.**Obviousness under 35 USC 103(a)****I. Claim 9.**

Claim 9 was rejected under 35 USC 103(a) as obvious in light of Brundage (US Patent 4,934,233) or Suzuki (US Patent 5,791,224) combined with Lokey (US Patent 3,785,230) and Yoneda (US Patent 4,117,752). The examiner says Brundage and Suzuki show miter saws as set forth in applicant's claim 9, except they do not disclose a detection system adapted to detect contact between a person and the blade or a brake mechanism adapted to stop rotation of the blade upon detection of contact. (Final Office Action mailed 9-20-05, p. 2.) The examiner cites Lokey to show a proximity detection system and brake for a circular saw, and he cites Yoneda to show a contact detection system and brake for a band saw. The examiner says it would have been obvious to combine the detection and braking systems of Lokey and Yoneda with the miter saws of Brundage or Suzuki to arrive at a miter saw as recited in applicant's claim 9. (Final Office Action mailed 9/20/05, p. 3.)

The Board should reverse the rejection because: 1) there is no reasonable expectation that the combination would succeed; rather, if the combination were possible, it would result in an unsafe saw, 2) the cited references teach away from the combination, 3) there is no teaching, suggestion or motivation to make the combination, and 4) there are objective indicia of non-obviousness. These points are explained below.

1. There is no reasonable expectation that the combination would succeed.

In order to support an obviousness rejection based on a combination of references, there must be a reasonable expectation that the combination would be successful. The obviousness rejection cannot stand without that expectation. In re Dow Chemical Co., 837 F.2d 469, 473, 5 USPQ2d (Fed. Cir. 1988) ("The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art."); see also MPEP 2143.02 ("Reasonable Expectation of Success Is Required"). In the case at hand, there is no reasonable expectation that the detection and braking systems of Lokey and Yoneda could be successfully combined with the miter saw of Brundage or Suzuki, and therefore the obviousness rejection should be reversed.

Lokey discloses a safety brake for machines such as hand-held circular saws and table saws. The safety brake includes a system to detect when a finger approaches the blade. A warning bell sounds when the system first detects proximity between the blade and finger, and a brake stops the blade if the finger continues to approach the blade. Lokey discloses two different brakes, one for a hand-held circular saw and another for a table saw. In the brake for a hand-held circular saw, two cams pivot into contact with the sides of the blade. (Lokey, column 2, lines 7-31.) In the brake for a table saw, a rubber block slides into the teeth of the blade. (Lokey, column 2, lines 34-55.) In these systems, a solenoid moves the cams or rubber block into contact with the blade. The time required to stop the blade with these brakes depends on the speed at which the solenoid operates and the force with which the solenoid accelerates the cams

or rubber block. Every solenoid includes a wire coil and both the speed at which the solenoid operates and the force the solenoid produces depend on the size of the coil. The larger the coil the larger the force, but larger coils have greater inductance and therefore require more time to energize. Solenoids capable of moving Lokey's cams and rubber block require at least 10 to 15 milliseconds to energize, and after that, additional time is required for the cams or rubber block to engage and stop the blade.

If brakes like those disclosed by Lokey were combined with a contact detection system as required by applicant's claim 9, then the resulting saw would be unsafe because a person would be seriously injured in the time it took the brakes to stop the blade. This is not a problem for Lokey's system because that system detects proximity of a hand to the blade instead of contact, and therefore, Lokey's system has additional time within which to stop the blade. But this problem prevents Lokey's brakes from being used with a contact detection system. Applicant does not know of any solenoids capable of moving Lokey's cam members or brake block fast enough to work with a contact detection system, and the Examiner has not identified any. Therefore, there is no reason to think that the brakes disclosed by Lokey could be used in a miter saw as defined by applicant's claim 9.³

Yoneda also discloses two brakes, a clamp brake to grip the sides of the band blade and an electromagnetic brake to grip a plate secured to one of the pulleys around which the band blade travels. (Yoneda, column 2, lines 34-41.) Yoneda's clamp brake, however, is configured to grip the sides of a band blade, not a circular blade as in a

³ Lokey's rubber block also could not be used in a miter saw because there is no way for the block to slide into engagement with the blade due to structural differences between miter saws and table saws.

miter saw. (Yoneda, column 3, lines 33-34 and Figures 1 and 4.) A circular blade spins at a very high speed and has angular momentum, so trying to stop a spinning circular blade quickly enough to mitigate injury after detecting contact by clamping the sides of the blade is questionable. Similarly, Yoneda's electromagnetic brake would not work in a miter saw because there is no plate or pulley for the brake to grip.

Yoneda's contact detection system is also designed specifically for a band saw and would not work in a miter saw. The detection system of Yoneda includes a "bearing 16 of electrically conducting materials rotatably mounted on a shaft 17." (Yoneda, column 2, lines 26-27.) The bearing contacts the side of the band blade and connects the blade to Yoneda's detection circuit and amplifier. (Yoneda, column 2, lines 27-29.) The bearing stays in contact with the band blade by rolling along the blade as the blade moves around various pulleys. That bearing, however, would not work in a miter saw because a miter saw has a circular blade that spins instead of a band blade along which the bearing can roll. The bearing would skip over the side of the circular blade because different points on the spinning blade would have different angular velocities depending on how far the point is from the axis of rotation. The result is that the bearing would contact the blade only intermittently, and intermittent contact is unacceptable for a contact detection system because a person may touch the blade at any time. It is clear that the bearing connecting Yoneda's band blade to the detection circuit would have to be modified to work with a miter saw, but it is not clear how.

For these reasons, there is no reason to think that the brakes of Lokey or Yoneda and the contact detection system of Yoneda could be successfully combined with the miter saw of Brundage or Suzuki. At the very least, the cited references have not

enabled that combination. The Federal Circuit has explained that in order to support an obviousness rejection, the cited references "must provide an enabling disclosure, i.e., [it] must place the claimed invention in the possession of the public. ... An invention is not 'possessed' absent some known or obvious way to make it." In re Payne, 606 F.2d 303, 314, 203 USPQ 245 (CCPA 1979) (citations omitted). There simply is no teaching in any cited reference suggesting how to implement brakes as disclosed in Lokey or Yoneda with a contact detection system as disclosed in Yoneda in a miter saw as disclosed by Brundage or Suzuki. Therefore, claim 9 in the present application is not obvious in light of those references. In fact, the absence of a reference suggesting the use of a contact detection system with a circular blade, even though Yoneda teaches such a detection system for band blades, supports the conclusion that contact detection systems have been understood by those of skill in the art not to work with circular blades.

But more importantly, even if it were possible to combine the detection and braking systems of Lokey and Yoneda with the miter saws of Brundage and Suzuki, it still would not have been obvious to do so because the resulting saw would be unsafe. The blade of a miter saw is mounted to spin on the end of an arm that pivots up and down. A person uses the saw by placing a workpiece under the spinning blade and then pivoting the blade and arm down to cut the workpiece. If the blade were stopped suddenly, as it would have to be in order to mitigate injury after detecting accidental contact with a person, then the angular momentum of the blade would cause the blade to move down into the work zone with a significant force. Specifically, when the blade was stopped, the angular momentum of the spinning blade would transfer through the

brake to the pivot arm. The pivot arm would then try to spin in the same direction as the blade due to the conservation of angular momentum and that would urge the pivot arm down toward the work surface because that is the only movement the pivot arm can make that is in the same direction as the blade was spinning. The blade would move down into the work zone with significant force, potentially causing a more serious injury to the person. Thus, if one added Lokey's or Yoneda's brakes to the miter saw of Brundage or Suzuki, assuming those brakes could be added, the resulting saw would be unsafe. Because the resulting saw would be unsafe, there is no reasonable expectation that the combination would work.⁴

2. The cited references teach away from the combination.

Another reason why it would not have been obvious to combine the detection and braking systems of Lokey and Yoneda with the miter saws of Brundage and Suzuki is because Lokey, by disclosing a proximity detection system, teaches away from using a contact detection system. A person of ordinary skill would more likely try to incorporate a proximity detection system in a miter saw rather than a contact detection system because a proximity detection system would completely avoid injuries, if it worked reliably. In light of Lokey's teaching, why would a person of ordinary skill think to use a contact detection system in a miter saw? Where is the motivation to try that? Applicant asserts that there is no such motivation or suggestion because Lokey teaches away from a contact detection system, and therefore, applicant's claims are not

⁴ Applicant discusses the problem of the angular momentum of a miter saw blade causing the blade to move down into a work zone when the blade is stopped in paragraph 38 of the published specification, which corresponds to page 17, lines 3-15 of the specification as submitted. Applicant invented solutions to that problem, and those solutions are disclosed in paragraphs 39-46 of the published specification, or page 17, line 16 through page 22, line 10 of the specification as submitted.

obvious. See, e.g., McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1354, 60 USPQ2d 1001 (Fed. Cir. 2001) ("We have noted elsewhere, as a 'useful general rule,' that references that teach away cannot serve to create a *prima facie* case of obviousness." Citation omitted.); In re Haruna, 249 F.3d 1327, 1335-1336, 58 USPQ2d 1517 (Fed. Cir. 2001) ("Because Benne teaches away from a final product having a broad transparent outer region, it does not render the claimed design obvious."); In re Geisler, 116 F.3d 1465, 1469, 43 USPQ2d 1362 (Fed. Cir. 1997) ("[A] *prima facie* case of obviousness can be rebutted if the applicant ... can show 'that the art in any material respect taught away' from the claimed invention." Quoting In re Malagari, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974)).

3. There is no teaching, suggestion or motivation to make the combination.

The obviousness rejection of claim 9 also should be reversed because there is no teaching, suggestion or motivation in the prior art to combine Brundage or Suzuki with Lokey and Yoneda. Without such a teaching, suggestion or motivation, the obviousness rejection cannot stand. In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453 (Fed. Cir. 1998). Additionally, the suggestion to combine references "must be founded in the prior art, not in the applicant's disclosure." In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438 (Fed. Cir. 1991).

The requirement for a suggestion to combine references is explained by the case of In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453 (Fed. Cir. 1998). In that case the Board of Patent Appeals and Interferences affirmed the rejection of an application concerning a satellite communication system. The application addressed the problem of how to keep a receiver on the earth in communication with a satellite moving around the

earth. Typically, a satellite transmits multiple signal beams to the earth and a receiver must switch from one beam to another as the satellite moves. This switching from beam to beam is referred to as a handover, and a disruption in communication is more likely during a handover. Rouffet minimized the number of handovers required by changing the shape of the transmitted beams from cones to fans. Fan-shaped beams have elliptical footprints that extend parallel to the direction of a satellite's motion. The elliptical footprints help ensure that a fixed point on the earth will remain within the satellite's beam. Id. at 1353.

The examiner rejected Rouffet's claims as obvious in light of a patent to King, a patent to Rosen, and a conference report by Ruddy. King disclosed a system to launch a plurality of low-orbit satellites. Rosen disclosed a geostationary satellite using fan-shaped beams oriented in an east-west direction. Ruddy disclosed a television broadcast system that transmitted a single fan-shaped beam upward from the earth into which satellites would successively enter. This fan-shaped beam was oriented so its long axis was aligned with the long axes of the satellites' orbits. Id. at 1356. The Board affirmed the examiner's rejection and added an alternative rejection based on the combination of two other patents. Rouffet then appealed to the Federal Circuit.

On appeal, the Federal Circuit found no error in the Board's conclusion that "the combination of King, Rosen, and Ruddy contains all of the elements claimed in Rouffet's application." Id. at 1357. Nevertheless, the Federal Circuit concluded "the Board reversibly erred in determining that one of skill in the art would have been motivated to combine these references in a manner that rendered the claimed invention obvious." Id. The Federal Circuit said the Board erred by failing to identify any specific

understanding or scientific principle suggesting the combination. The court explained that an examiner cannot simply find claim elements in the prior art and then combine them to arrive at the invention because such an approach would allow hindsight to influence the determination. Rather, an examiner must find the claim elements in the prior art and then specify how the prior art suggests or motivates the combination of those elements. This is explained in the following discussion from Rouffet:

As this court has stated, "virtually all [inventions] are combinations of old elements." *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 698, 218 U.S.P.Q. 865, 870 (Fed. Cir. 1983); see also *Richdel, Inc. v. Sunspool Corp.*, 714 F.2d 1573, 1579-80, 219 U.S.P.Q. 8, 12 (Fed. Cir. 1983) ("Most, if not all, inventions are combinations and mostly of old elements.") Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability." *Sensonics, Inc. v. Aerasonic Corp.*, 81 F.3d 1566, 1570, 38 U.S.P.Q.2d 1551, 1554 (Fed. Cir. 1996).

To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness. In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the Inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.

This court has identified three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. In this case, the Board relied upon none of these. Rather, just as it relied on the high level of skill in the art to overcome the differences between the claimed invention and the selected elements in the references, it relied upon the high level of skill in the art to provide the necessary motivation. The Board did not, however, explain what specific understanding or technological principle within the knowledge of one of ordinary skill in the art would have suggested the combination.

Instead, the Board merely invoked the high level of skill in the field of art. If such a rote invocation could suffice to supply a motivation to combine, the more sophisticated scientific fields would rarely, if ever, experience a patentable technical advance. Instead, in complex scientific fields, the Board could routinely identify the prior art elements in an application, invoke the lofty level of skill, and rest its case for rejection. To counter this potential weakness in the obviousness construct, the suggestion to combine requirement stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness.

Because the Board did not explain the specific understanding or principle within the knowledge of a skilled artisan that would motivate one with no knowledge of Rouffet's invention to make the combination, this court infers that the examiner selected these references with the assistance of hindsight. This court forbids the use of hindsight in the selection of references that comprise the case of obviousness. See *In re Gorman*, 933 F.2d 982, 986, 18 U.S.P.Q.2d 1885, 1888 (Fed.Cir.1991). Lacking a motivation to combine references, the Board did not show a proper *prima facie* case of obviousness. This court reverses the rejection over the combination of King, Rosen, and Ruddy. (Rouffet, 149 F.3d at 1357-1358.)

This discussion is pertinent to the case at hand because the examiner in the present application did not identify any specific understanding or technological principle that would motivate a person of ordinary skill to select the various elements from the prior art and arrange them as set forth in applicant's claims, just as the examiner in Rouffet failed to identify any such understanding or principle. The examiner in the case at hand simply said it would have been obvious to combine the references "in order to prevent injury to a user." (Final Office Action mailed 9/20/05, p. 3.) But there is no support in the cited references for that conclusion. To the contrary, if it were possible to combine the cited references, it would be better to equip the miter saw of Brundage or Suzuki with the proximity detection system of Lokey because, as explained, that system would stop the blade before contact with the user. If Lokey suggests what could be a

safer alternative, then why would a person of ordinary skill in the art want modify Brundage or Suzuki to trigger a brake upon contact as specified in applicant's claims?

The examiner's motivation "to prevent injury to a user" is simply a rote invocation of the desire for safer products used to justify the combination of references, just as the reliance on a high level of skill was a rote invocation used to justify the combination of references in Rouffet. As explained by the Federal Circuit, such rote invocations cannot provide the required motivation because then there would rarely be any patentable technical advance. Instead, a specific suggestion to make a combination is required. Expressed differently, it is not the desire to make something better but the solution that must be suggested or taught, and that suggestion must be clear and particular because, as the Federal Circuit has said, "invention itself is the process of combining prior art in a nonobvious manner." Id. at 1359. In the case at hand, the examiner failed to identify any specific suggestion to make the combination.

Another case explaining the requirement of a specific suggestion to combine references is In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (citations omitted), abrogated on other grounds in In re Gartside, 203 F.3d 1305, 53 USPQ2d 1769 (Fed. Cir. 2000). In that case the Board of Patent Appeals and Interferences affirmed the rejection of an application concerning a trash bag made to look like a jack-o'-lantern when filled with leaves or trash. The application was rejected in light of conventional plastic trash bags combined with orange crepe paper jack-o'-lanterns (referred to as the Holiday reference) and paper bag pumpkins (referred to as the Shapiro reference). The Federal Circuit reversed the rejection because the Board did not identify a suggestion to make the combination. The Federal Circuit explained,

[R]ather than pointing to specific information in Holiday or Shapiro that suggest the combination with the conventional bags, the Board instead described in detail the similarities between the Holiday and Shapiro references and the claimed invention, noting that one reference or the other – in combination with each other and the conventional trash bags – described all of the limitations of the pending claims. ... Nowhere does the Board particularly identify any suggestion, teaching, or motivation to combine the children's art references (Holiday and Shapiro) with the conventional trash or lawn bag references, nor does the Board make specific – or even inferential -- findings concerning the identification of the relevant art, the level of ordinary skill in the art, the nature of the problem to be solved, or any other factual findings that might serve to support a proper obviousness analysis. ...

...Yet this reference-by-reference, limitation-by-limitation analysis fails to demonstrate how the Holiday and Shapiro references teach or suggest their combination with the conventional trash or lawn bags to yield the claimed invention. ... Because we do not discern any finding by the Board that there was a suggestion, teaching, or motivation to combine the prior art references cited against the pending claims, the Board's conclusion of obviousness, as a matter of law, cannot stand. (Dembiczak, 175 F.3d at 1000.)

Just as in Dembiczak, the examiner in the case at hand made a reference-by-reference, limitation-by-limitation analysis without identifying any specific teaching or suggestion in the prior art to make the combination. In other words, the examiner simply found what he thought were the elements of applicant's claims, and then combined those elements according to applicant's teachings. As explained in Dembiczak, that type of analysis cannot support a conclusion of obviousness. The Federal Circuit clearly stated: "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability – the essence of hindsight." Id. at 999. In the case at hand, just as in Dembiczak, the examiner "fell into the hindsight trap." Id. It is only by looking at applicant's disclosure that one learns to incorporate a contact detection

system and brake mechanism in a miter saw, the cited references do not suggest that combination.

A factor that may be considered in determining whether the prior art suggests a particular combination is whether the combination would require a substantial reconstruction or change the principle of operation of the device being modified. If it would, then there is no suggestion to make the combination. This is explained by the case of In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). In that case, claims directed to an oil seal comprising a bore engaging portion with a resilient sealing member were rejected as obvious in light of a combination of references, including a primary reference with a more rigid seal. The court reversed the rejection, explaining that the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." Id. at 813, 123 USPQ at 352.

Ratti is analogous to the case at hand because the proposed combination of Brundage or Suzuki with Lokey and Yoneda would require a substantial reconstruction and redesign of the miter saws disclosed by Brundage and Suzuki. Those miter saws would somehow have to be designed to include a contact detection system and brake. Additionally, the miter saws would have to be modified in some undisclosed way so that the angular momentum of the blade would not cause the blade to move down into the cutting zone when the brake suddenly stops the blade. These are substantial and undisclosed changes to the miter saws, and these changes support the conclusion that

there is no suggestion to make the combination, just as similar facts showed there was no suggestion to combine references in Ratti.

4. There are objective indicia of non-obviousness.

Another factor showing that a miter saw as described in claim 9 would not have been obvious is the existence of objective indicia of non-obviousness.

Every year in the United States there are tens of thousands of people severely injured with power saws according to the U.S. Consumer Product Safety Commission, National Electronic Injury Surveillance System, Directorate for Epidemiology.⁵ These are all severe injuries that require a visit to a hospital emergency room. The number and severity of these injuries clearly shows there is a long felt need for safer saws. The fact that others have tried to solve this problem is evidenced by the Lokey and Yoneda patents. However, the continued high number of severe injuries shows that those attempts have failed. Fortunately, saws constructed as specified in applicant's claims have the potential to significantly reduce the severity of these injuries. The long felt need for safer saws and the failure of others to satisfy that need supports the conclusion that applicant's claims are non-obvious. (See the attached declaration of inventor Stephen F. Gass, ¶5.)

Additionally, the technology which is the basis for miter saws constructed as required by applicant's currently pending claims has been recognized as new and innovative by various entities associated with the woodworking industry, as shown by the following awards (See Gass Decl. ¶6):

⁵ These statistics are available from the U.S. Consumer Product Safety Commission at www.cpsc.gov.

- Chairman's Commendation. The U.S. Consumer Product Safety Commission awarded the technology a Chairman's Commendation for significant contributions to product safety. That award was reported nationally on CNN Headline News.

- Challenger's Award. At an International Woodworking Fair in Atlanta, Georgia, the technology won the Challenger's Award, which is the woodworking industry's highest honor. It recognizes the most innovative and technically advanced improvements to woodworking equipment.

- Popular Science – One of the 100 Best New Innovations. The magazine *Popular Science* identified the technology as one of the 100 best new innovations of 2002.

- Workbench Magazine – One of the Top 10 Tools for 2003. *Workbench* magazine included saws incorporating the technology on its list of the top 10 innovative tools for 2003.

- Woodwork Institute of California Endorsement. The Woodwork Institute of California has endorsed the technology, stating:

As a Trade Association in the construction industry (representing over 250 manufacturers of architectural millwork with an excess of 4,000 employees, all of whom use saws of one type or another) we find your SawStop technology and its potential of eliminating or reducing worker injury of extreme significance. Generally, we would not endorse a commercial product; however the potential benefit to our members and their employees of implementing the SawStop technology on the tools used within our industry overrides such.

- Editor's Choice Award, Tools of the Trade. The magazine *Tools of the Trade* awarded the technology its 2001 Editor's Choice Award in recognition of its significance.

The technology that is the basis for applicant's currently pending claims also has been the subject of extensive media coverage, including national coverage by CNN

Headline News, by the television program NEXT@CNN, by the Associated Press, and by Paul Harvey on the ABC Radio Network. (See Gass Decl. ¶7.) Additionally, numerous magazines have published reports about the technology, and have referred to it as "revolutionary," "unique," and "ingenious." Id. The media's interest in the technology supports the conclusion that the technology is novel and noteworthy.

For all these reasons, claim 9 is not obvious and the rejection of that claim should be reversed.

II. Claim 30.

Claim 30 was also rejected under 35 USC 103(a) as obvious in light of Brundage or Suzuki combined with Lokey and Yoneda. Claim 30 is non-obvious for the same reasons given above concerning claim 9. Claim 30 is also not obvious because it requires "brake means for stopping rotation of the blade upon detection by the detection system of contact between the blade and the person." The structure, material or acts described in the specification as corresponding to the recited function are the various embodiments described in the specification. Those embodiments include one or more of reaction subsystem 24, brake mechanism 28, biasing mechanism 30, restraining mechanism 32, release mechanism 34, pawl 60, fusible member 70, firing subsystem 76, and cartridge 80. These items are not disclosed in the cited references. This is an additional reason claim 30 is not obvious. See, e.g., 35 USC 103(a) (question is whether "the subject matter as a whole would have been obvious"); Application of Royka, 490 F.2d 981, 985 (CCPA 1974) (claim not obvious because limitation missing from cited references); Application of Wilson, 424 F.2d 1382, 1385 (CCPA 1970) ("All words in a claim must be considered in judging the patentability of that claim against the

prior art."); MPEP 2143.03 ("To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.")

8. Claims appendix.

1-8. (cancelled).

9. A miter saw comprising:

a support structure having a cutting zone;

a swing arm above and pivotally attached to the support structure;

a rotatable blade supported by the swing arm so that the blade may move into the cutting zone;

a handle associated with the swing arm and adapted so that a user may pivot the swing arm and blade into the cutting zone;

a motor adapted to drive the blade;

a detection system adapted to detect contact between the blade and a person; and

a brake mechanism adapted to stop rotation of the blade upon detection by the detection system of contact between the blade and the person.

10-29. (cancelled).

30. A miter saw comprising:

a support structure having a cutting zone;

a swing arm above and pivotally attached to the support structure;

a rotatable blade supported by the swing arm so that the blade may move into the cutting zone;

a handle associated with the swing arm and adapted so that a user may pivot the swing arm and blade into the cutting zone;

a motor adapted to drive the blade;

a detection system adapted to detect contact between the blade and a person; and

brake means for stopping rotation of the blade upon detection by the detection system of contact between the blade and the person.

9. Evidence appendix.

Evidence submitted during prosecution of the application pursuant to 37 C.F.R. 1.132 includes the Declaration of Stephen F. Gass. Appellant relies on this evidence in this appeal. The original, signed copy of the declaration was received by the Patent Office on October 12, 2004 and was entered it in the record on that date. A copy of that declaration is set forth on the following pages.

10. Related proceedings appendix.

None.

Respectfully submitted,

SD3, LLC



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I hereby certify that this Appeal Brief is being deposited with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or facsimile transmitted to the U.S. Patent and Trademark Office to number (571) 273-8300, on the date shown below.

Date: February 17, 2006



David A. Fanning

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
STEPHEN F. GASS, DAVID S. D'ASCENZO and
DAVID A. FANNING

Date: October 12, 2004

Serial No.: 09/929,238

Examiner Thomas J. Druan

Filed: August 13, 2001

Group Art Unit 3724

For: MITER SAW WITH IMPROVED SAFETY SYSTEM

To: Commissioner for Patents
Attention: Examiner Thomas J. Druan
Group Art Unit 3724
P.O. Box 1450
Alexandria, Virginia 22313-1450

DECLARATION OF STEPHEN F. GASS

I, Stephen F. Gass, declare as follows:

1. I am a named inventor in the above-identified application.
2. I am a member of applicant SD3, LLC.
3. In an Office Action mailed June 16, 2004, the Examiner rejected claims in the above-identified application under 35 U.S.C. §103(a) in light of U.S. Patent No. 5,184,534 to Lee in view of U.S. Patent No. 4,117,752 to Yoneda. I am filing this declaration to traverse those rejections and to submit evidence concerning non-obviousness.
4. My educational background is in physics. In 1986 I earned a Bachelor of Science degree in physics from Oregon State University, and graduated summa cum laude. In 1990 I was awarded a Ph.D. degree in physics from the University of California San Diego.

Page 1 - DECLARATION OF STEPHEN F. GASS
Serial No. 09/929,238

PAGE 28/23 * RCVD AT 10/12/2004 7:19:16 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/1 * DNIS:2729306 * CSID:5036388601 * DURATION (mm:ss):06:38

PAGE 27/30 * RCVD AT 2/17/2006 2:27:45 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/32 * DNIS:2738300 * CSID:5035703303 * DURATION (mm:ss):07:32

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5. The U.S. Consumer Product Safety Commission, National Electronic Injury Surveillance System, Directorate for Epidemiology, reports that every year in the United States there are over 90,000 people severely injured with power saws. These are all severe injuries that require a visit to a hospital emergency room. About 10% of these injuries result in amputations. The number and severity of these injuries shows there is a long felt need for safer saws. Others have tried to solve this problem, as evidenced by the Lee and Yoneda patents cited by the Examiner. However, the continued high number of severe injuries shows that those attempts have failed. Saws constructed as required by the claims currently pending in the above-identified application have the potential to significantly reduce the severity of these injuries.

6. The technology which is the basis for saws constructed as required by applicant's currently pending claims has been recognized with at least the following awards:

- Chairman's Commendation. The U.S. Consumer Product Safety Commission awarded the technology a Chairman's Commendation for significant contributions to product safety. That award was reported nationally on CNN Headline News.
- Challenger's Award. At an International Woodworking Fair in Atlanta, Georgia, the technology won the Challenger's Award, which is the woodworking industry's highest honor. It recognizes the most innovative and technically advanced improvements to woodworking equipment.
- Popular Science – One of the 100 Best New Innovations. The magazine Popular Science identified the technology as one of the 100 best new innovations of 2002.

Page 2- DECLARATION OF STEPHEN F. GASS
Serial No. 09/929,238

PAGE 21/23 *RCVD AT 10/12/2004 7:19:36 PM [Eastern Daylight Time] *SVR:USPTO-EFXRF-1/1 *DNI:3729306 *CSID:4036388601 *DURATION (mm:ss):06:30

PAGE 28/30 *RCVD AT 2/17/2006 2:27:45 PM [Eastern Standard Time] *SVR:USPTO-EFXRF-6/32 *DNI:2738300 *CSID:5035703303 *DURATION (mm:ss):07:32

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- Workbench Magazine – One of the Top 10 Tools for 2003. Workbench magazine included the saws incorporating the technology on its list of the top 10 innovative tools for 2003.
- Woodwork Institute of California Endorsement. The Woodwork Institute of California has endorsed the technology, stating:

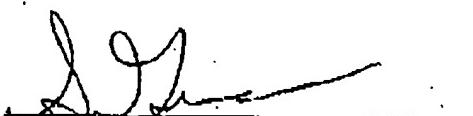
As a Trade Association in the construction industry (representing over 250 manufacturers of architectural millwork with an excess of 4,000 employees, all of whom use saws of one type or another) we find your SawStop technology and its potential of eliminating or reducing worker injury of extreme significance. Generally, we would not endorse a commercial product; however the potential benefit to our members and their employees of implementing the SawStop technology on the tools used within our industry overrides such.

- Editor's Choice Award, Tools of the Trade. The magazine *Tools of the Trade* awarded the technology its 2001 Editor's Choice Award in recognition of its significance.

7. The technology that is the basis for the currently pending claims has also been the subject of extensive media coverage, including national coverage by CNN Headline News, by the television program NEXT@CNN, by the Associated Press, and by Paul Harvey on the ABC Radio Network. Numerous magazines have published reports about the technology saying it is "revolutionary," "unique" and "ingenious."

8. I hereby declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

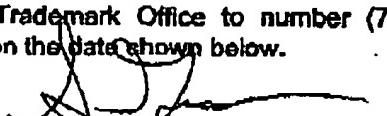
Date: October 12, 2004


Stephen F. Gass

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I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or facsimile transmitted to the U.S. Patent and Trademark Office to number (703) 872-9306, attention Examiner Thomas J. Drusen, on the date shown below.

Date: October 12, 2004


Stephen F. Gass

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